REMARKS

As an initial matter, Applicants address the Examiner's determination that Preliminary Amendment (A), filed February 15, 2001, contains new matter (Office Action, dated December 18, 2002, page 7, lines 1-14). First, the original specification describes "a nickel tube 20 m long" on page 26, line 10 describing ""Test Example 2." Therefore, it is not new matter to amend page 16, line 8, to describe this fact. Second, the amended description wherein "an upper limit of the film thickness is selected to be around 0.5 mm" corrects a typographical error on page 38, lines 10-11, and is fully supported on page 9, lines 18-20, of WO97/28085, filed on January 27, 1997 as International Application No. PCT/JP97/00188. Page 9, lines 16-20, of WO97/28085 states "In this test example 6...an upper limit of film thickness is selected to be around 0.5 mm," and the corresponding International Application No. PCT/JP97/00188 has been properly incorporated by reference in Preliminary Amendment (A) of the present case, filed on February 15, 2001. Therefore, in accordance with well-established patent practice, the international application provides justification to amend the specification to correct the typographical error on page 38 without adding new matter. See MPEP 608.01(p); In re Hawkins, 179 USPQ 157 (CCPA 1973); In re Hawkins, 179 USPQ 163 (CCPA 1973); In re Hawkins, 179 USPQ 167 (CCPA 1973). Third, the remaining changes deemed to be new matter have been removed from the application by the present amendment.

In accordance with the requirements of MPEP 608.01(p) and In re Hawkins, 179 USPQ 157 (CCPA 1973); In re Hawkins, 179 USPQ 163 (CCPA 1973); In re Hawkins, 179 USPQ 167 (CCPA 1973), I, Mr. Joerg-Uwe Szipl, the attorney of record for the applicants, hereby declare by my signature below that the amendatory material presented as

amendment No. 8 to the specification presented above consists of the same material incorporated by reference in the referencing application as identified in Preliminary Amendment (A), filed February 15, 2001, and that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issue thereon.

Drawings

As another initial matter, Applicants address the Examiner's multiple objections to the drawings (see Office Action, dated December 18, 2002, page 5, line 1 to page 6, line 22). First, Figs. 46, 47, and 48 are not prior art. Fig. 46 is directed to experimental data collected when the water-generating reactor of Fig. 38, which is an embodiment in accordance with the present invention having a conventional platinum coated film, is used to generate water (see specification, page 12, lines 6-7, and page 49, line 23 to page 50, line 22). Figs. 47 and 48 are not prior art because they illustrate experimental data from using XPS analysis to investigate the causes of falling catalytic activity (specification, page 51, lines 9-13). The remaining minor informalities with the drawings were addressed in an attached paper in accordance with 37 C.F.R. 1.121(d), filed April 30, 2003. The drawings submitted on April 30, 2003 are the "corrected drawings incorporating said changes" and satisfy the Examiner's requirement to provide corrected drawings (see Office Action, dated July 15, 2003, section 2). In addition, Applicants provide "proposed drawing

correction showing changes" in red ink or highlighted that is attached herewith for the Examiner's convenience (see Office Action, dated July 15, 2003, section 2).

Presently, claim 47 has been amended to remove the limitation "the gas diffusing member" so that the claim now recites structure in accordance with elected species C (see Office Action, dated July 29, 2002, page 4, lines 5-6). Claims 81 and 82 have been canceled without prejudice because they each recited structure in accordance with non-elected species D.

The present amendment adds no new matter to the application.

The Invention

The present invention is directed to a water-generating reactor, such as might be used in semiconductor manufacturing facilites and other situations where there is a need to generate water. In particular, one embodiment in accordance with the present invention is a water-generating reactor that includes: (a) an inlet to receive hydrogen and oxygen; (b) an outlet to expel water; (c) a passage formed in the reactor, wherein the inlet is disposed at one end of the passage and the outlet is disposed at another end of the passage so that hydrogen and oxygen flows through the inlet and into the passage; (d) a reactor body made of a heat-resistant metal, the reactor body comprising a first reactor body member welded to a second reactor body member, wherein the inlet and the outlet are mounted on the reactor body, the outlet is a water and moisture gas take-out joint, the passage is an internal space defined by recesses inside the reactor body, and the recesses include a first spherical recess having a first surface and a second spherical recess having a second surface; and (f) a platinum coating film is disposed only on the surface of the first recess

surface, wherein when hydrogen and oxygen supplied by the inlet and diffused contact the platinum coating film, water is generated from reactivity of the hydrogen and the oxygen.

Various other embodiments in accordance with the present invention are described in the dependent claims. The main advantage of the various embodiments of the water-generating reactor in accordance with the present invention is that high-purity water can be produced from hydrogen and oxygen. Furthermore, the platinum coating film provides a high catalytic activity while minimizing the formation of metal oxides; therefore, the platinum coating film remains stable over a long period of time because it is resistant to degradation by oxidation.

The Rejection

Claims 47, 56, 58-60 and 65 stand rejected under 35 U.S.C. 112, first and second paragraph, as lacking an adequate written description and for being indefinite.

Claims 47, 56 and 60 stand rejected under 35 U.S.C. 102(b) as anticipated by Japanese Document JP 4-54184 (hereafter, "JP'184 reference"). Claim 58 stands rejected under 35 U.S.C. 103(a) as unpatentable over the JP'184 reference. Claims 59 and 65 stand rejected under 35 U.S.C. 103(a) as unpatentable over the JP'184 reference in view of Japanese Document JP 52-111891 (hereafter, "JP'891 reference"). Claims 59 and 65 stand rejected under 35 U.S.C. 103(a) as unpatentable over the JP'184 reference in view of Japanese Document JP 6-122580 (hereafter, "JP'580 reference").

Claims 47, 56, 58-60 and 65 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 1-8 of co-pending Application No. 09/905,209 and over claims 1-8 of co-pending Application No. 10/096,247.

Applicants respectfully traverse the rejection and request reconsideration of the application for the following reasons.

Applicants' Arguments

In view of the present amendment, claims 47, 58-60 and 65 now comply with 35 U.S.C. 112. With respect to the Examiner's rejection under 35 U.S.C. 112, first paragraph, courts have held that the function of the written description requirement is to ensure that the inventor had possession of the claimed subject matter as of the date of filing, and that it is only necessary for the application to set forth the claimed subject matter so one skilled in the art will recognize that the applicant possessed the invention. In re Wertheim, 191 USPQ 90, 96 (CCPA 1976).

Figures 43 and 49 clearly show "recesses" (22a) and (23a) formed in the reactor body members (22) and (23). One skilled in the art would recognize from the specification and the drawings what is a "recess" and that the recesses have surfaces. The fact that the Examiner objects to the word "recess" is immaterial to a rejection under 35 U.S.C. 112, first paragraph, because the proper test is whether one of ordinary skill in the art would recognize the claimed subject matter from the description. Id. The Examiner has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the claimed subject matter. Id. at 97. This the Examiner has not done.

Furthermore, the Webster's New Twentieth Century Dictionary (2nd ed.), page 1505, attached herewith, defines "recess" as "a receding or hollow place, as in a surface." Elements (22a) and (23a) shown in Figures 43 and 49 meet this definition. In fact, they could also be considered "indentations" using the definition provided by the Examiner.

With respect to claim 60, Applicants point out that the claim is definite because a ratio is dimensionless and any units of measurement drop out in the dimensional analysis of the ratio. Therefore, the Examiner's position (Office Action, dated December 18, 2002, page 9, lines 7-9) that claim 60 is indefinite for failing to specify measurement by weight, by volume, or by mole, is untenable and should be withdrawn because a ratio is a dimensionless element.

Applicants note the provisional obviousness-type double patenting rejection pending against claims 47, 56, 58-60, and 65 over claims 1-8 of co-pending Application No. 09/905,209 and claims 1-8 of co-pending Application No. 10/096,247. As neither of the co-pending applications have been allowed, the obviousness-type double patenting rejection is merely provisional. Therefore, Applicants choose to defer further comment on this issue until such time as the obviousness-type double patenting rejection is no longer provisional.

The JP'184 reference discloses a water generating reactor that includes a catalyst held by the molded member (6) placed inside the reactor vessel (1), and a heating conductor (7) heats the molded member (6) and the catalyst (see Figure 1). The JP'184 reference does not teach, or even suggest, the "first reactor body member welded to the second reactor body member," the "first spherical recess having a first surface" and a "second spherical recess having a second surface," wherein the "platinum coating film is disposed only on the surface of the first recess" as recited in claim 47.

The JP'891 reference discloses a "metal film" formed on the hardened surface of a base metal so that a hard metal film having a high melting point is formed on the metal surface (see English Abstract). The metal film may be formed by ion-plating, spattering,

or TiC deposition to form a hard metal film of Mo, W, Cr, Ni, TiC or TiN (see English Abstract).

The JP'580 reference discloses the formation of a carbide layer (2) on a carbonaceous substrate (1) to improve the oxidation resistance of the carbonaceous material (see English Abstract). The carbide layer consists essentially of SiC, a thin film layer (3) made of TiC, and a thin-film layer (4) including a platinum group element (see English Abstract).

Courts have held that to justify a rejection under 35 U.S.C. 103, it must be shown that (1) the prior art would have suggested to those of ordinary skill in the art that they should make the claimed device, (2) the prior art revealed that in so making, those of ordinary skill would have a reasonable expectation of success, and (3) both the suggestion and the reasonable expectation of success must be founded in the prior art and not the Applicants' disclosure. In re Vaeck, 20 USPQ2d 1438, 1442. In the present case, the Examiner has not shown that the prior art would have suggested to those of ordinary skill in the art that they should make the presently claimed device by combining the teachings of the JP'184 reference with either one of the JP'891 reference or the JP'580 reference for the following reasons.

The JP'891 reference teaches a process for hardening a metal surface. The reactor vessel (1) of the JP'184 reference receives hydrogen and oxygen gas (8), (9). There is nothing in the teaching of the JP'184 reference that would suggest a need to harden the metal surface of the reactor vessel (1), which only receives gases. Therefore, there is no proper suggestion in the JP'184 reference to justify applying the process of the JP'891 reference to harden the walls of the reactor vessel (1).

The JP'580 reference teaches the application of a carbide layer to improve the oxidation resistance of a carbonaceous substrate. There is nothing in the JP'184 reference to teach that the reactor vessel (1) has walls made of a carbonaceous substrate. In fact, the present specification teaches a reactor made of a heat-resistant metal (see claim 47). Therefore, there is no proper suggestion in the JP'184 reference that the reactor vessel (1) would be made of a carbonaceous substrate; therefore, there exists no reason taught by the prior art to form a carbide layer as taught by the JP'580 reference on the walls of the reactor vessel (1) disclosed by the JP'184 reference.

Conclusion

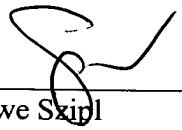
Claims 47, 58-60, 65, and 83 are in compliance with 35 U.S.C. 112. The rejection under 35 U.S.C. 102(b) is untenable and should be withdrawn because the JP'184 reference does not teach, or even suggest, the "first reactor body member welded to the second reactor body member," the "first spherical recess having a first surface" and a "second spherical recess having a second surface," wherein the "platinum coating film is disposed only on the surface of the first recess" as recited in claim 47. Furthermore, the rejections under 35 U.S.C. 103 are untenable and should be withdrawn because the prior art does not provide a suggestion to combine the JP'184 reference with either one of the JP'891 reference or the JP'580 reference.

For all of the above reasons, claims 47, 58-60, 65, and 83 are in condition for allowance and a prompt notice of allowance is earnestly solicited.

Questions are welcomed by the below-signed attorney for applicants.

Respectfully submitted,

GRIFFIN & SZIPL, PC



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rec'ep·tā·ry, *a.* accepted generally but not proved. [Obs.]

rec'ep·tā·ry, *n.* a thing popularly accepted. [Obs.]

rē·cep·ti·bil'i·ty, *n.* the quality or state of being receptible; receivableness.

rē·cep'ti·ble, *a.* capable of or suited for receiving or being received; receivable.

rē·cep'tion, *n.* [Fr., from L. *receptio* (*-onis*), a receiving.]

1. the act of receiving; the getting or receiving of a thing sent, offered, given, or communicated; as, the *reception* of news.
2. the state of being received or admitted; admission.
3. the manner of receiving on arrival; treatment at first coming; welcome; as, a hearty *reception*, a cold *reception*.
4. a social function, often formal, for the receiving of guests.
5. the act of mentally accepting or approving; admission, credence, or allowance, as of an opinion or doctrine; sanction.

As extravagant opinions as even common *reception* countenanced. —Locke.

6. in radio and television, the manner of receiving and reproducing, with reference to the relative quality of the reproduction; as, the storm caused poor *reception*.

Syn.—admission, admittance, acceptance, acceptation.

rē·cep'tion·ist, *n.* a person employed in an office to receive callers, make appointments, give information, etc.

rē·cep'tion room, a room in a house, office, etc. for receiving visitors as they arrive.

rē·cep'tive, *a.* [ML. *receptivus*, from L. *receptus*.]

1. receiving or tending to receive, take in, admit, or contain.
2. inclined to the favorable reception of a request, suggestion, etc.
3. able or ready to receive new ideas, etc.
4. of reception or receptors.

rē·cep'tive·ness, *n.* the state or quality of being receptive; receptivity.

rē·cep·tiv'i·ty, *n.* 1. the state or quality of being receptive.
2. the ability or capacity of the mind for receiving impressions.

rē·cep'tŏr, *n.* [L.] 1. a receiver; anyone or anything that receives.
2. in physiology, a sense organ; the peripheral cells, nerve endings, etc. which receive and transmit external stimuli.

rē·cep'tō·ry, *n.* a receptacle. [Obs.]

rē·cess' (*also, esp. in sense* 5, rē'ses), *n.* [L. *recessus*, from *recedere*, to withdraw.]

1. a withdrawing or retiring; departure. [Obs.]
2. a receding; recession; as, the *recess* of the tides.
3. a receding or hollow place, as in a surface, wall, etc.; a niche.
4. [*usually in pl.*] a secluded, withdrawn, or inner place; as, subterranean *recesses;* the *recesses* of the subconscious.
5. (a) a temporary withdrawal from or halting of work or business, as at school; (b) the state or time of this; as, the court was in *recess*.
6. in anatomy, a small cavity, hollow, indentation, etc. in an organ or part.
7. privacy; seclusion from the world or company; a state of retirement; as, lords in close *recess*. [Obs.]
8. secret or abstruse part; as, the difficulties and *recesses* of science.
9. a decree of the Imperial Diet of the old German Empire.

rē·cess', *v.t.*; recessed (-cest'), *pt., pp.*; recessing, *ppr.* 1. to make into a recess; to make a recess in.
2. to place or set in a recess.

rē·cess', *v.i.* to take a recess.

rē·ces'sion (-sesh'un), *n.* [L. *recessio* (*-onis*), from *recedere*, to withdraw.]

1. the act of receding; a going back or backward; withdrawal.
2. the procession of the clergy and choir from the chancel to the vestry at the end of the service.
3. a receding part, as of a wall.
4. in economics, a temporary falling off of business activity during a period when such activity has been generally increasing, as during that after a depression.

rē·ces'sion, *n.* a cession or granting back; as, the *recession* of conquered territory to its former sovereign.

rē·ces'sion·ăl, *a.* 1. of or pertaining to a recession.
2. of a parliamentary recess. [Brit.]

rē·ces'sion·ăl, *n.* 1. a recessional hymn.
2. music for such a hymn.

rē·ces'sion·ăl hymn (him), a hymn sung at the end of a church service during the recession (sense 2).

rē·ces'sive, *a.* [from L. *recessus*, and *-ive*.]

1. receding or tending to recede.
2. tending to move from the last toward the first syllable of a word: said of stress, or accent.
3. in genetics, designating or relating to that one of any pair of opposite Mendelian characters which, when factors for both are present in the germ plasm, remains latent: opposed to *dominant*.

rē·ces'sive, *n.* 1. in genetics, a recessive character or factor.
2. an organism having such characters.

Reçh'à·bīte, *n.* 1. one of a family descended from Jonadab, the son of Rechab, bound to the continuance of the nomadic life and adhering to several rules, the chief of which were: to abstain from wine, from building houses, from sowing seed, and from planting vineyards. These rules were observed by the Rechabites with great strictness.
2. a member of a secret benefit society composed of total abstainers from intoxicating drinks, called the Independent Order of Rechabites: it was founded in England in 1835.

rē·chärġe', *v.t.* and *v.i.*; recharged, *pt., pp.*; recharging, *ppr.* to charge again (in various senses).

rē'chärġe, *n.* a recharging.

ré·chauf·fé' (rā-shō-fā'), *n.*; *pl.* **ré·chauf·fés'** (-fā'), [Fr., pp. of *réchauffer*, to warm over, from *ré-*, again, and *échauffer*, to heat.]

1. a dish of leftover food reheated.
2. any used or old material, especially literary material, worked up in a new form; a rehash.

rē·chēat', *n.* [Fr. *requête*, older *requeste*, a note on the horn to recall the dogs.] in hunting, a strain blown to call back the hounds. [Archaic.]

re·cher'ché (rē-shär'shā), *a.* [Fr., pp. of *rechercher*.]

1. sought out with care; rare; choice; uncommon.
2. having refinement or studied elegance.
3. too refined; too studied.

reçh'less, *a.* reckless. [Obs.]

rē·cid'i·vāte, *v.i.* to backslide. [Obs.]

rē·cid·i·vā'tion, *n.* [L. *recidivus*, a falling back.]

1. a backsliding. [Obs.]
2. habitual return to former criminal practices; recidivism.

rē·cid'i·vism, *n.* [from L. *recidivus*, from *recidere*, to fall back, from *re-*, back, and *cadere*, to fall; and *-ism*.] habitual or chronic relapse, or tendency to relapse, into crime or antisocial behavior patterns.

rē·cid'i·vist, *n.* a habitual criminal; a person characterized by recidivism; one who returns to criminal practices habitually.

rē·cid'i·vous, *a.* liable to backslide; especially, characterized by or tending to recidivism.

rec'i·pē, *n.* [L., imperative of *recipere*, to take.]

1. a formula for a medical prescription: symbol, ℞: now usually called *prescription*.
2. a medicine made up according to such a formula; a prescription.
3. a list of materials and directions for preparing a dish or drink; a receipt.
4. anything proposed as a remedy, for doing something, or for producing a desired result.

rē·cip'i·an·gle, *n.* [L. *recipere*, to take, and *angulus*, an angle.] in engineering, an instrument formerly used for measuring angles, especially in fortification.

rē·cip'i·ence, *n.* 1. a receiving; reception.
2. the condition of being recipient; receptivity.

rē·cip'i·en·cy, *n.* same as *recipience*.

rē·cip'i·ent, *a.* receiving, or ready, willing, or able to receive.

rē·cip'i·ent, *n.* [L. *recipiens* (*-entis*), ppr. of *recipere*, to receive.]

1. a receiver; one to whom or that to which anything is communicated or given.
2. a receiver (sense 2a). [Obs.]

rē·cip'i·ō·mō"tŏr, *a.* in physiology, receiving a motor stimulus.

rē·cip'rō·căl, *a.* [L. *reciprocus*; Fr. *réciproque*, alternating, going backward and forward.]

1. done, felt, given, etc. in return; as, *reciprocal* tolerance.
2. on both sides; each to the other; mutual; as, they felt a *reciprocal* affection.
3. corresponding but reversed or inverted.
4. corresponding; equivalent or interchangeable; complementary.
5. in grammar, (a) expressing mutual action or relation; as, *each other* is a *reciprocal* pronoun; (b) formerly, reflexive.
6. in mathematics, of the reciprocals of quantities, or their relations.
7. reciprocating; alternate. [Obs.]

reciprocal equation; one which has the same form if the reciprocal of the unknown quantity is substituted for the quantity itself.

reciprocal figures; two figures of the same kind, as triangles, parallelograms, prisms, etc., so related that two sides of one form the extremes of a proportion of which the means are the two corresponding sides of the other.

reciprocal proportion; same as *inverse proportion* under *inverse*.

reciprocal quantities; those quantities which multiplied together produce unity.

reciprocal ratio; same as *inverse ratio* under *inverse*.

reciprocal terms; terms which have the same value and may be used for each other.

Syn.—interchangeable, mutual.—The distinctive idea of *mutual* is that the parties unite by interchange in the same act; as, a *mutual* covenant. The distinctive idea of *reciprocal* is that one party acts by way of return or response to something previously done by the other party; as, a *reciprocal* kindness.

rē·cip'rō·căl, *n.* 1. anything that has a reciprocal action on or relation to another; a complement, counterpart, equivalent, etc.
2. in mathematics, the quantity (with reference to a given quantity) resulting from the division of 1 by the given quantity; as, the *reciprocal* of 7 is $^1/_7$.

rē·cip·rō·çal'i·ty, *n.* the state or quality of being reciprocal.

rē·cip'rō·căl·ly, *adv.* in a reciprocal manner.

reciprocally proportional; designating two quantities when both being variable the ratio of the one to the reciprocal of the other is constant. This requires that their product should be constant.

rē·cip'rō·căl·ness, *n.* same as *reciprocality*.

rē·cip'rō·cănt, *n.* in mathematics, a differential invariant. [Rare.]

rē·cip'rō·çāte, *v.i.*; reciprocated, *pt., pp.*; reciprocating, *ppr.* [from L. *reciprocatus*, pp. of *reciprocare*, from *reciprocus*.]

1. to move alternately back and forth; to interchange position.
2. to give and get reciprocally; to interchange.
3. to make some sort of return for something done, given etc.
4. to be correspondent or equivalent.

reciprocating engine; that form of engine in which the piston and piston rod move back and forth in a straight line, absolutely, or relatively to the cylinder: distinguished from *rotary engine*, (a).

reciprocating motion; in mechanics, motion alternately backward and forward, or up and down, as of a piston rod.

rē·cip'rō·çāte, *v.t.* 1. to cause to move alternately back and forth.
2. to give and get, do, feel, etc. reciprocally; to interchange; as, they *reciprocate* enmity.
3. to give, do, feel, etc. in return; to return in kind or degree; as, we *reciprocate* her affection.
4. to make correspondent or equivalent. [Rare.]

rē·cip·rō·çā'tion, *n.* [L. *reciprocatio*.] the act or fact of reciprocating (in various senses).

rē·cip'rō·çā·tive, *a.* 1. reciprocating or tending to reciprocate.
2. characterized by reciprocation.

rē·cip'rō·çā·tŏr, *n.* a person or thing that reciprocates.

rec·i·proc'i·ty, *n.* [Fr. *reciprocité*.]

1. reciprocal state or relationship; mutual action, dependence, etc.
2. a reciprocating; interchange; mutual exchange; especially, exchange of special privileges between two countries, to the advantage of both, as mutual reduction of tariffs.

reciprocity treaty; a treaty entered into for the purpose of securing commercial reciprocity between two nations.

rē·cip·rō·çor'nous, *a.* [L. *reciprocus*, back-